

Incident Summary #II-783351-2018 (#9986) (FINAL)

SUPPORTING INFORMATION	Incident Date	December 2, 2018	
	Location	Whistler	
	Regulated industry sector	Passenger ropeways - Above surface ropeway	
	Impact	Qty injuries	2
		Injury description	Person 1 injuries reported as, sore neck, headache and symptoms of concussion. Person 2 injuries reported as, sore neck and body soreness.
		Injury rating	Minor
	Damage	Damage description	Damage to a cabin door opening mechanism. Including upper (lever) (Figure 3) and internal door operating mechanisms (cassette).
		Damage rating	Minor
	Incident rating	Minor	
Incident overview	A carrier being conveyed through the station stalled at the cabin door opening system due to the cabin doors not being free to move. At that point an attendant initiated an emergency stop. A carrier following the stalled cabin then bumped into the stalled carrier as the ropeway decelerated to stop.		
INVESTIGATION CONCLUSIONS	Site, system and components	<ul style="list-style-type: none"> A 2-section gondola with bottom, middle and top stations. Detachable grip where carrier grips detach from haul rope at the station and are conveyed via a system of tires and conveyor chains and then reattach to a haul rope as they leave the station (the station conveying system speed is proportional to the haul rope speed). The carrier cabin doors open and close automatically as they enter and leave the stations. Passengers load their equipment onto racks mounted to the cabin doors (2 opposing doors which open linearly). Passengers load and unload themselves as the cabin moves through the station loading unloading areas. The door operating mechanism operates through a system in which a lever on the carrier engages a ramp fixed in the station (see Figures 1 and 2). A roller on the end of the lever rolls along the ramp causing the lever to pivot and actuate an operating cable. (Figure 3) The cable operates a set of gears and pivots which open the cabin doors. 	
	Failure scenario(s)	Because the doors were not free to move, the carrier door opening mechanism sustained damage and stalled the carrier as it engaged with the door opening ramp. The adjacent following carrier then bumped into the stalled carrier as the ropeway decelerated to a stop.	
	Facts and evidence	<p>Narrative of the sequence of events based on the attendants description of the incident:</p> <ul style="list-style-type: none"> Incident occurred at the downhill side direction in the return station. 	

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	<ul style="list-style-type: none"> Carrier 27 stalled at the door opener, doors were not opening, attendant hit the emergency stop. As the ropeway decelerated to a stop, the adjacent trailing carrier ,cabin 24, made contact with carrier 27 (carriers are not in numerical order). <p>First aid report indicates:</p> <ul style="list-style-type: none"> The 2 passenger that were injured were occupants of carrier/cabin 24. One of the passengers injured had a medical history of head and neck injuries. <p>Operating contractor indicated that carrier 27 was taken offline (due to damage of the carrier door opening mechanism) and carrier 24 was inspected and left online.</p> <p>Lift operation reported that the haul rope speed was 3.5 m/s at the time the incident occurred.</p> <p>On-site inspection estimated that the carrier speed (speed of the conveying system) at 1m ahead of the door opener to be .45 m/s at 5.5 m/s haul rope speed (top speed for haul rope). A system to prevent contact between adjacent cabins is not required at speed differentials of less than 1 m/s. With that in mind, the carrier speed would have been less as the station carrier conveyor system speed is proportional to the haul rope speed. Haul rope speed was reported to be 3.5 m/s at the time the incident occurred.</p> <p>CTV video related to the incident of both the top and return station was provided by the operating contractor. Review of CTV video and discussion with ropeway operations staff indicated that a snowboard was placed into the door rack of carrier 27 which had the binding facing toward the door. Top station CTV video showed that the door with the aforementioned snowboard in the rack does not fully close.</p> <p>CTV video of incident at the bottom station clearly showed carrier 27 stalled and carrier 24 bumping into carrier 27.</p>
<p>Causes and contributing factors</p>	<p>Damage to the door opening mechanism likely due to the doors not being able to move freely. The snowboard placed in the door rack with the binding facing toward to the door could plausible have become entangled with the door and inturn preventing the doors from moving freely.</p> <p>Injuries to the passengers were likely are due to the impact of the carrier bumping into the stalled carrier.</p>

Figure 1: No carriers at door opener



Figure 2: Carrier moving through door opener



Figure 3. Looking Down at Carrier

